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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER YOUNG, NATASHA E				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/502,045

Applicant(s)

KUDO ET AL.

Examiner

NATASHA YOUNG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6, 10-12, 16 and 32-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-6, 10, 16, 32-41 and 44-46 is/are rejected.
- 7) ☒ Claim(s) 11, 12, 42 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 07/30/2009, 08/20/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 30, 2009 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Ohno et al (WO 01/23069, English Equivalent US 6,669,751 B1).

Regarding claim 4, Ohno et al discloses a honeycomb filter (see column 1, lines 6-11) for purifying exhaust gases, comprising: a plurality of columnar porous ceramic members (F1) having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to

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filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members (9a) and ones sealed at an outlet side of said columnar porous ceramic member (9b) such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see column 5, lines 24-61; column 9, lines 1-63; and figures 2-4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohno et al (WO 2001/23069 A1, English Equivalent US 6,669,751 B1).

Regarding claims 5-6, Ohno et al inherently discloses the limitations of a filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members (see column 5, lines 24-61; column 9, lines 1-63; and figures 2-4).

In the alternative, if the reference does not inherently disclose these features, it would have been obvious to set the thermal capacity per unit volume of the adhesive layer to 90 % or less of the thermal capacity per unit volume of the porous ceramic members and to 20% or more of the thermal capacity per unit volume of the porous ceramic members, since it has been held that where the general conditions of a claim

are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Claims 10 and 32-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno et al (WO 2001/23069 A1, English Equivalent US 6,669,751 B1) as applied to claim 4 above, and further in view of Ito et al (EP 361883 A1).

Regarding claim 32, Ohno et al does not disclose a filter wherein said plurality of pores is formed by incorporating a material which forms independent pores in said adhesive layer.

Ito et al discloses adding into the bonding material a given amount of a foaming agent (see page 3, lines 18-23) such that said plurality of pores is formed by incorporating a material which forms independent pores in said adhesive layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Ohno et al with the teachings of Ito et al such that the filter wherein said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 33, Ohno et al does not disclose a filter wherein said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Ohno et al with the teachings of Ito et al such that the filter wherein said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 34, Ohno et al discloses a filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see column 5, lines 42-61).

Regarding claims 10 and 35-36, Ohno et al discloses a honeycomb filter (see column 1, lines 6-11) for purifying exhaust gases, comprising: a ceramic block (9) comprising at least one columnar porous ceramic member (F1) having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members (9a) and ones sealed at an outlet side of said columnar porous ceramic member (9b) such that the exhaust

gas enters from the inlet side, passes through the partition wall and flows out from the outlet side (see column 5, lines 24-61; column 9, lines 1-63; and figures 2-4).

Ohno et al does not disclose a coating material layer formed on a circumferential face of said ceramic block; having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; said plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer; and wherein said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses adding into the bonding material a given amount of a foaming agent and coating material layer having the same components as the bonding material except the foaming agent (see page 3, lines 15-32).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Ohno et al with the teachings of Ito et al such that the filter has a coating layer to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

It would have been obvious to add a foaming agent to the coating material layer, such that a plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer, from a finite number of identified, predictable solutions for ways of improving the coating material layer, i.e., it would have been "obvious to try" adding a foaming agent which forms pores after firing to enhance the coating material layer by the addition of pores, which would inherently adjust a

thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

Regarding claim 37, Ohno et al discloses a catalyst supported in at least one of said ceramic block (see column 5, lines 42-61).

Claims 16, 38-41, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno et al (US 6,669,751 B1) in view of Ito et al (EP 361883 A1).

Regarding claims 16 and 44-45, Ohno et al discloses a honeycomb filter (see column 1, lines 6-11) for purifying exhaust gases, comprising: a plurality of columnar porous ceramic members (F1) having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members (9a) and ones sealed at an outlet side of said columnar porous ceramic member (9b) such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer; wherein the thermal capacity per unit volume of said adhesive layer is adjusted to be lower than a thermal capacity per unit volume of the columnar porous ceramic members (see column 5, lines 24-61; column 9, lines 1-63; and figures 2-4).

Ohno et al does not disclose a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste which forms a plurality of pores adjusting a thermal capacity per unit volume and the thermal capacity per unit volume of said coating material layer is adjusted to be lower than the thermal capacity per unit volume of the columnar porous ceramic members; wherein said plurality of pores is formed by incorporating a material which forms independent pores in said coating material; and wherein said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses adding into the bonding material a given amount of a foaming agent and coating material layer having the same components as the bonding material except the foaming agent (see page 3, lines 15-32).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Ohno et al with the teachings of Ito et al such that the filter has a coating layer to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

It would have been obvious to add a foaming agent to the coating material layer, such that a plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer, from a finite number of identified, predictable solutions for ways of improving the coating material layer, i.e., it would have been "obvious to try" adding a foaming agent which forms pores after firing to enhance the coating material layer by the addition of pores, which would inherently adjust a

thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

Regarding claims 38-39, Ohno et al inherently discloses the limitations of a filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members (see column 5, lines 24-61; column 9, lines 1-63; and figures 2-4).

In the alternative, if the reference does not inherently disclose these features, it would have been obvious to set the thermal capacity per unit volume of the adhesive layer to 90 % or less of the thermal capacity per unit volume of the porous ceramic members and to 20% or more of the thermal capacity per unit volume of the porous ceramic members, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding claim 40, Ohno et al does not disclose a filter wherein said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer.

Ito et al discloses adding into the bonding material a given amount of a foaming agent (see page 3, lines 18-23) such that said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Ohno et al with the teachings of Ito et al such that the filter wherein said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 41, Ohno et al does not disclose a filter wherein said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Ohno et al with the teachings of Ito et al such that the filter wherein said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 46, Ohno et al discloses a filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see column 5, lines 42-61).

Allowable Subject Matter

Claims 11-12 and 42-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art references, Ohno et al and Ito et al, do not disclose or suggest a filter wherein the thermal capacity per unit volume of the coating layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the coating layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Response to Arguments

Applicant's arguments with respect to claims 4-6, 10-12, 16, and 32-46 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Y./

Examiner, Art Unit 1797

/Walter D. Griffin/

Supervisory Patent Examiner, Art Unit 1797